

On the Trichoptera from the Island of Tsushima, with Seven New Species (Insecta)

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対島の毛翅目（昆虫）について

対島の毛翅目相の調査は現在までに谷（1978）の報告があるのみで、その全ようは解明されていない。そこで1984年6月に対島に渡る機会があったので、全島から四ヶ所をえらび、集中的に調査採集をおこなった。その結果をここに報告する。

今回の調査では10科18属25種の生息が確認できた。なお、次の7種を国際動物命名規約にしたがって新種としてここに記載した。

Sortosa kaishoensis, *Wormaldia niiensis*, *Plectrocnema asuana*, *Rhyacophila tsusimaensis*, *Crunocilla toyotamaensis*, *Morpsyche apicalis*, *Leptocerus funasiensis*.

（小林峯生）

I. Introduction.

In the spring of 1984, the caddisfly fauna was surveyed at the Island of Tsushima. In only six days of collect period, 25 species of adult Trichoptera were collected from four selected study areas restricted from the Island of Tsushima. This articles contains seven new and nine newly record species.

The catches represented the following seven new species.

Sortosa kaishoensis, *Wormaldia niiensis*, *Plectrocnema asuana*, *Rhyacophila tsusimaensis*, *Crunocilla toyotamaensis*, *Morpsyche apicalis*, *Leptocerus funasiensis*.

II. Study periods and method.

The survey was conducted from 3th to 6th June in 1984. The adult of Trichoptera were collected by light trapping with electricity at fore selected areas. All genitalia drawings made for this work have been executed from specimens so cleared in KOH. The site of light trapping are shown in Fig. 1.

III. List of Trichoptera.

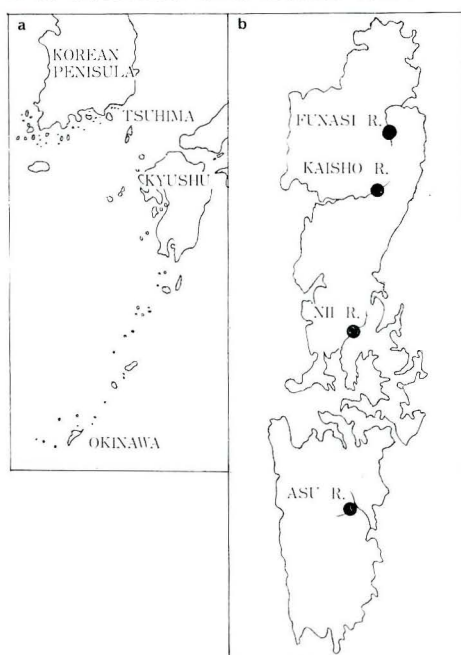


Fig. 1. The location (a) and collecting areas (b) of the Island of Tsushima.

Family **Philopotamidae**

The Philopotamidae are known from all the region of the world and may be found in all those areas with flowing water. Although their generic diversity is great in the colder and mountain sections. Larvae occur only in riffle areas of streams.

Genus ***Sortosa*** NAVAS1) *Sortosa kisoensis* (TSUDA)

Dolophilodes kisoensis TSUDA, 1939. Annot. Zool. Japon., 18: 296-297.

Sortosa kisoensis: ROSS, 1956. Evolution and classification of the mountain caddisflies. Univ. Ill. Press, Urbana: 57.

Sortosa kisoensis: KOBAYASHI, 1980. Bull. Kanagawa Pref. Mus. (Nat. Hist.), 12: 89-90.

Specimens examined: 4♂♂11♀♀ (7771, 7781), Funashi River, Yokotori (260m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI).

This species, originally described from Nagano Prefecture in Japan, has since been recorded from each area in Japan, and it is here newly recorded from the Island of Tsushima.

2) *Sortosa kaishoensis* sp. nov. (Figs. 2-4).

Male: Length 5.7 mm. Color predominantly gray-brown, the under parts lighter. Wings also uniformly gray-brown. Eighth abdominal sternite with a short median process as in Fig. 3. General structure typical for genus. Genitalia as in Figs. 3, 4. Ninth tergite short, very broad, with incurved at the lower portion of the apical margin, and rounded at its apex. Tenth segment modelately long, taper off to the end,

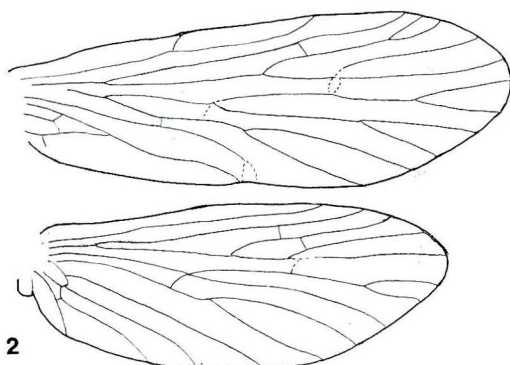
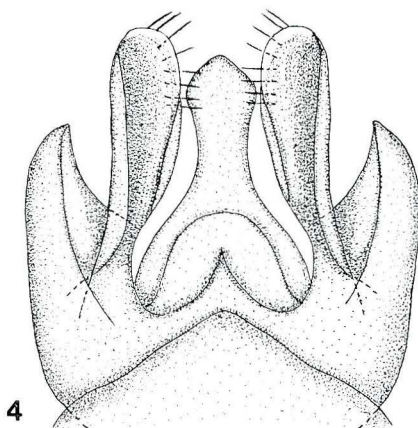
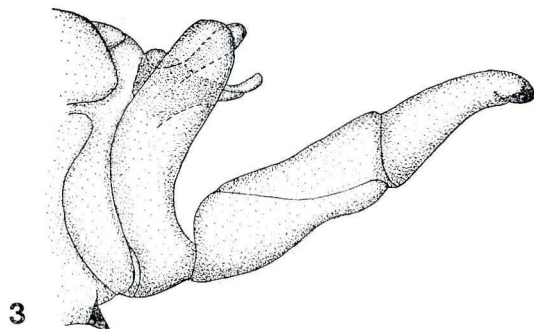


Fig. 2. Wings of *Sortosa kaishoensis* sp. nov.



Figs. 3-4. Male genitalia of *Sortosa kaishoensis* sp. nov. 3, lateral view; 4, dorsal view.

nearly beak-shaped. Cerci slender, finger-shaped. Clasper two-segmented; the basal segment thick, longer than the apical segment; taper off the end, inner surface at the apex bearing a dense mat of short black setae.

Holotype: Male (7825), Kaisho River (100m), Kamitsushima-machi, Kamiagata-gun Nagasaki Pref., 5. VI. 1984 (M. KOBAYASHI). Paratype: 3♂♂5♀♀ (7790), Asu River, Izuhara (100 m), Izuhara-machi, Shimoagata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI). 1♀ (7782), Funashi River. Yokotori (260 m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 6. VI. 1984 (M. KOBAYASHI).

This species closely resembles *S. suriculata* and *S. commata* in the shape of clasper, but differs from those by the structure of the tenth segment and cerci.

Genus *Wormaldia* McLACHLAN

3) *Wormaldia niiensis* sp. nov. (Fig. 5-8).

Male: Length 5.5 mm. Color various shades of median to dark brown. Wings with dark brown hairs. General structure typical for genus. Seventh sternite with long apical process as in Fig. 6. Genitalia as in Figs. 7, 8. Ninth segment with narrow tergite and broad sternite; tergite is nearly triangle, and sternite nearly quadrate. Tenth segment slender, taper off the end; the top curved upwardly. Cerci slender, wedge-shaped. Clasper two-segmented, basal segment stouter than apical segment; terminal margin

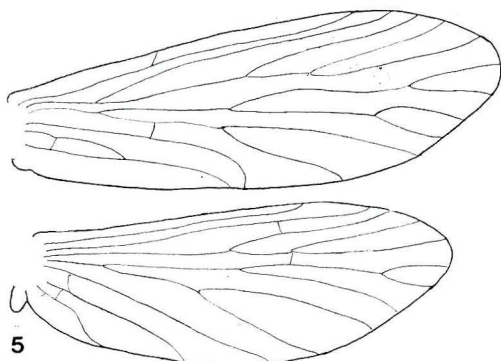
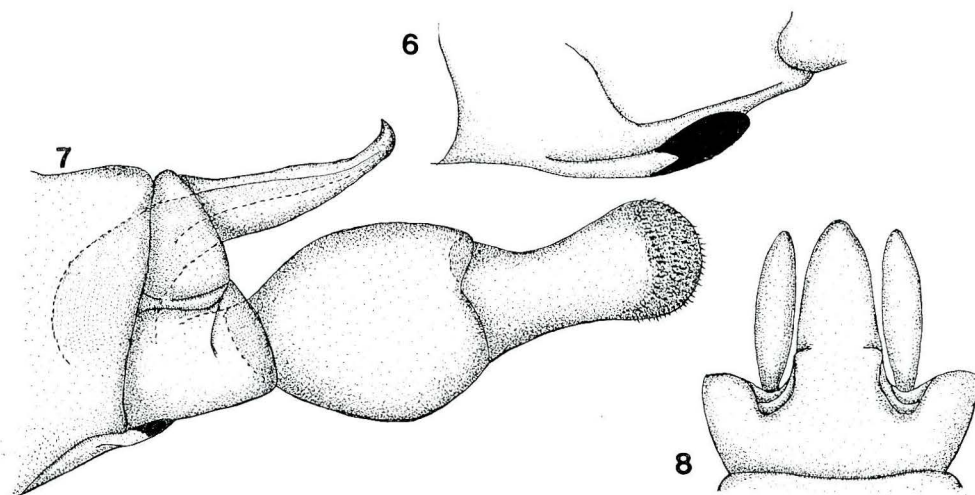


Fig. 5. Wings of *Wormaldia niiensis* sp. nov.



Figs. 6-8. Ventral plate and genitalia of the male of *Wormaldia niiensis* sp. nov. 6, ventral plate; lateral view. 7-8, genitalia; 7, lateral view; 8, dorsal view.

slightly incurved at the middle portion, nearly egg-shaped; terminal segment with narrow at middle portion; internal surface at the apex bearing a dense mat of short black setae.

Holotype: Male (7810), Nii River, Nii (50m), Toyotama-machi, Shimoagata-gun, Nagasaki Pref., 4. VI. 1984 (M. KOBAYASHI). Paratype: 1♂ (7821) 2♀♀ (7827), Kaisho River (100m), Kamitsushima-machi, Kamiagata-gun. Nagasaki Pref., 5. VI. 1984 (M. KOBAYASHI).

This specimens resembles *W. gariella* in shape of clasper, but differs from that by the structure of the tenth segment.

4) *Wormaldia* sp.

Specimens examined: 2♀♀ (7793, 7795), Asu River, Izuhara (100m), Izuhara-machi, Shimogata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI).

Genus *Chimarra* STEPHENS

5) *Chimarra tsudai* ROSS, 1956. Evolution and classification of the mountain caddisflies. Univ. Ill. Press, Urbana: 71-72.

Chimarra tsudai: TANI, 1978. Natural History of the Island of Iki. Press, Nagasaki Pref.: 39.

Chimarra tsudai: KOBAYASHI, 1980. Bull. Kanagawa Pref. Mus. (Nat. Hist.) 12: 88.

Specimens examined: 2♂♂ 2♀♀ (7792), Asu River, Izuhara (100m), Izuhara-machi, Shimoagata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI).

This species is described from Nagano Prefecture in Japan. TANI (1978) is first recorded from the Island of Tsushima.

Family *Psychomyiidae*

The Psychomyiidae are widely distributed over much of the world. Larvae of certain species are restricted to rapid streams, whereas others have an extremely wide ecological tolerance and are found in situations varying from lakes to rapid rivers.

Genus *Tinodes* LEACH

6) *Tinodes miyakonis* TSUDA

Tinodes miyakonis TSUDA 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B), 17: 270-271.

Specimens examined: 1♂ (7826), Kaisho River (100m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 5. VI. 1984 (M. KOBAYASHI).

This species is described from Kyoto Prefecture in Japan, and it is here newly recorded from the Island of Tsushima.

Family *Polycentropodidae*

The Polycentropodidae are one of the important families of Trichoptera in all major

faunal regions. Larvae occur in a variety of lentic environments and lotic environments that usually have a moderate or slight current.

Genus *Plectocnema* STEPHEN

7) *Plectocnema asuana* sp. nov. (Figs. 9-11)

Male: Length 6.1 mm. Color dark brown, Wings with dark brown hairs. General structure typical for genus. Genitalia as in Figs. 10, 11. Ninth tergite long, broad; apical margin slightly projected at the middle portion. Ninth tergite broad, nearly quadrilateral. Tenth segment membranous; apical margin truncate, with a few short hairs. Clasper two-segmented; basal segment stout, much shorter than the apical segment, with long bristles; apical segment chitinous, slender, curved at the apex upwardly. Aedeagus stout, rounded at the apex.

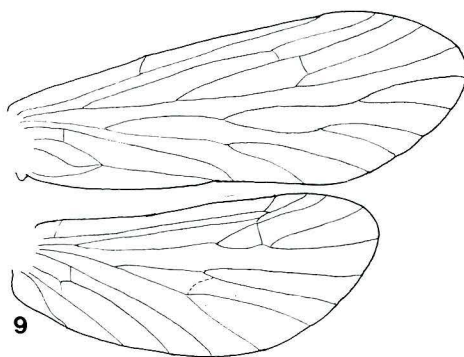


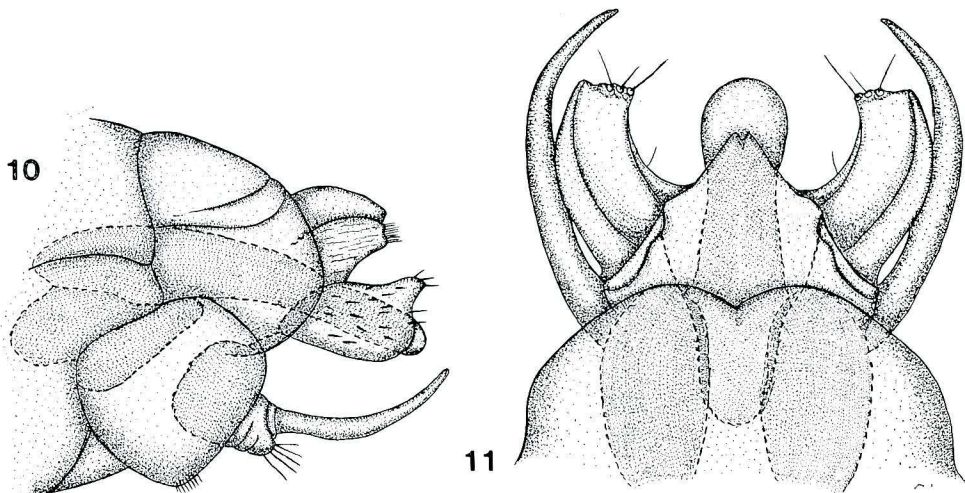
Fig. 9. Wings of *Plectocnema asuana* sp. nov.

Holotype: Male (7794-a), Asu River, Izuhara (100m), Izuhara-machi, Shimoagata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI). Paratype: 8♂♂ (7797). some locality as Holotype (M. KOBAYASHI).

8) *Plectrocoemia tochimotoi* SCHMID

Plectrocnemia tochimotoi SCHMID, 1964. Can. Ent. 96: 829.

Specimens examined: 1♂ (7808). Nii River, Nii (50m), Toyotama-machi, Shimoagata-gun, Nagasaki Pref., 4. VI. 1984 (M. KOBAYASHI). 9♂♂29♀♀ (7821), Kaisho River (100m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 5. VI. 1984 (M. KOBAYASHI).



Figs. 10-11. Male genitalia of *Plectocnema asuana* sp. nov. 10, lateral view; 11, dorsal view.

9♂♂ (7767, 7772), Funashi River, Yokotori (260m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 6. VI. 1984 (M. KOBAYASHI).

This species, originally described from Altai in South Usurii, has since been recorded from each area in Japan. TANI (1978) is first recorded from the Island of Tsushima.

Family **Hydropsychidae**

The Hydropsychidae are a large and dominant family of Trichoptera living in running water over much of the world; a few species live wave-washed shorelines of lakes.

Genus **Hydropsychodes** ULMER

9) *Hydropsychodes tokunagai* TSUDA

Hydroptychodes tokunagai TSUDA, 1940. Annot. Zool. Japon., 15; 30.

Hydropsychodes tokunagai TSUDA, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B). 17; 281.

Specimens examined: 3♂♂ 7♀♀ (7800), Nii River. Nii (50m). Toyotama-machi, Shimoagata-gun, Nagasaki Pref. 4. VI. 1984 (M. KOBAYASHI). 3♂♂ 14♀♀ (7766), Funashi River, Yokotori (260m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 6. VI. 1984 (M. KOBAYASHI).

This species is described from Formosa, and it is here newly recorded from the Island of Tsushima.

Genus **Hydropsyche** PICTET

10) *Hydropsyche ulmeri* TSUDA

Hydropsyche ulmeri TSUDA, 1940. Annot. Zool. Japon., 15; 26.

Hydropsyche ulmeri: TSUDA, 1942. Mem. Coll. Sci. Kyoto. Imp. Univ. (B). 17: 279.

Hydropsyche sp. (*ulmeri* auct.): TANI, 1978. Natural History of the Island of Iki. Press, Nagasaki Pref.: 392.

This species is described from Kyoto Prefecture in Japan. TANI (1978) is first recorded from the Island of Tsushima.

11) *Hydropsyche difficultata* KOBAYASHI

Hydropsyche difficultata KOBAYASHI, 1984. Bull. Kanagawa Pref. Mus. (Nat. Hist.), 15: 5-6.

Specimens examined: 9♂♂ 2♀♀ (7789), Asu River, Izuhara (100m), Izuhara-machi, Shimoagata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI), 1♂ (7809), Nii River, Nii (50 m), Toyotama-machi, Shimoagata-gun, Nagasaki Pref., 4. VI. 1984 (M. KOBAYASHI), 5♂♂ 24♀♀ (7820), Kaisho River (100m). Kamitsushima-machi, Kamiagata-gun, Nagasaki

Pref., 5. VI. 1984 (M. KOBAYASHI). 3♂♂ (7768), Funashi River, Yokotori (260m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 5. VI. 1984 (M. KOBAYASHI).

This species is described from Kanagawa Prefecture in Japan, and it is here newly recorded from the Island of Tsushima.

Family **Rhyacophilidae**

The Rhyacophilidae are known from all the region of the world. They are a large and important family in cold, clean, running waters of all faunal region. Each species tends to have a small geographic range.

Genus ***Apsilochorema*** ULMER

12) *Apsilochorema sutshanum* MARTYNOV

Apsilochorema sutshanum MARTYNOV, 1934. Trichoptera Annulipalpia of the USSR. Leningrad: 72.

Psilochorema japonicum TSUDA, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B), 17: 245-246.

Apsilochorema sutshanum: ROSS, 1956. Evolution and classification of the mountain caddisflies. Ill. Univ. Press, Urbana: 124.

Specimens examined: 2♂♂2♀♀ (7787), Asu River, Izuhara (100m), Izuhara-machi, Shimoagata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI). 4♀♀ (7823). Kaisho River (100m). Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 5. VI. 1984 (M. KOBAYASHI). 1♀ (7780), Funashi River, Yokotori (260m), Kamitsushima-machi, Kamiagatagun, Nagasaki Pref., 6. VI. 1984 (M. KOBAYASHI).

This species is described from South Usrri, and it is here newly recorded from the Island of Tsushima.

Genus ***Rhyacophila*** PICTET

15) *Rhyacophila tsusimaensis* sp. nov. (Figs. 12-14).

Male: Length 6.6mm. Color moderately light brown. General structure typical for genus. Genitalia as in Figs. 13, 14. Ninth segment widest at point of articulation of tenth segment. Tenth segment with the elongate and finger-shape; apical margin deeply concaved, with long process. Cerci finger-shaped,

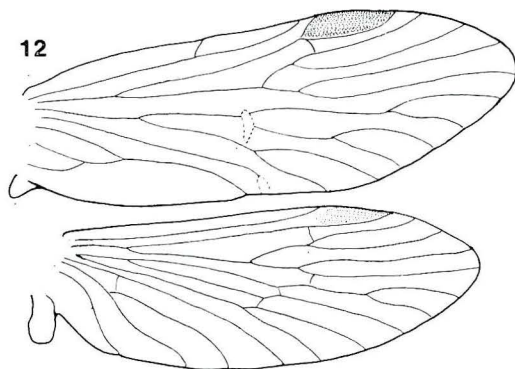
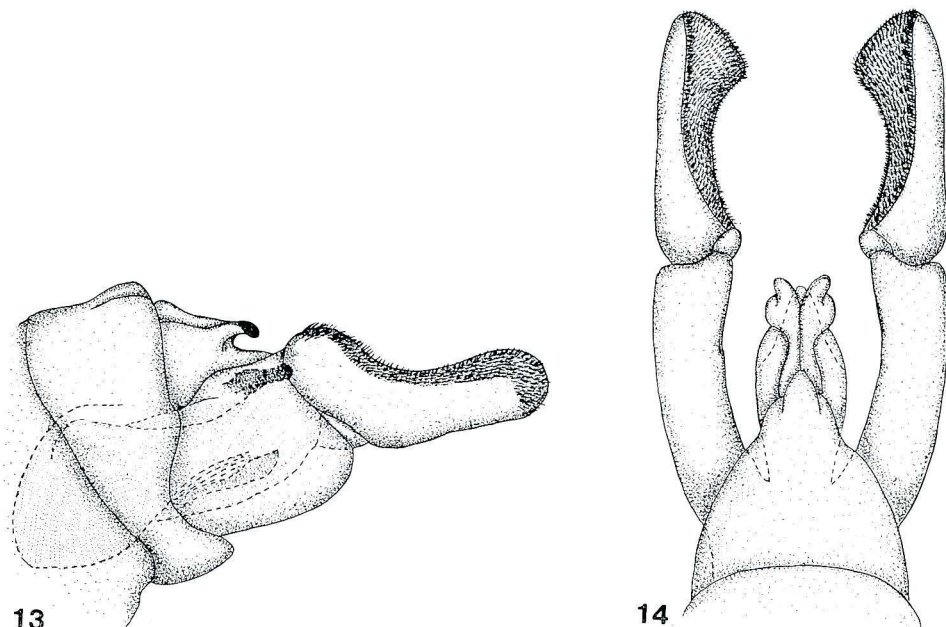


Fig. 12. Wings of *Rhyacophila tsusimaensis* sp. nov.



Figs. 13-14. Male genitalia of *Rhyacophila tsusimaensis* sp. nov. 13, lateral view; 14, dorsal view.

apical portion black. Clasper two-segmented; basal segment very stout; terminal segment longer and slender than the basal segment; upper surface bearing a elongate dense mat of short black setae or spines.

Holotype: Male (7818), Kaisho River (100m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 5. VI. 1984 (M. KOBAYASHI).

14) *Rhyacophila retracta* MARTYNOV

Rhyacophila retracta MARTYNOV, 1914. Rev. Russe d'Ent., 14: 75.

Rhyacophila uenoi TSUDA, 1940. Annot. Zool. Japon., 19: 123.

Rhyacophila retracta: ROSS, 1956. Evolution and classification of the mountain caddisflies. Univ. Ill. Press, Urbana: 121.

Rhyacophila retracta: TANI, 1978. Natural History of the Island of Iki. Press, Nagasaki Pref.: 392.

Rhyacophila retracta: EMOTO, 1979. Kontyû, 47 (4): 561-562.

Specimens examined: 1♀ (7785), Asu River, Izuhara (100m), Izuhara-machi, Shimoagata-gun, Nagasaki Pref., 3. VI. 1984.

This species, originally described from Altai in South Ussuri, has since been recorded from each area in Japan. TANI (1978) is first recorded from the Island of Tsushima.

15) *Rhyacophila nipponica* NAVAS

Rhyacophila nipponica NAVAS, 1933. Mem. Pont. Acc. Sci. Nouvi Lincei, Rome, 17: 93.

Rhyacophila nipponica: ROSS, 1956. Evolution and classification of the mountain caddisflies. Univ. Ill. Press, Urbana: 122.

Rhyacophila nipponica: TANI, 1978. Natural History of the Island of Iki. Press, Nagasaki Pref.: 392.

Specimens examined: 2♂♂ 1♀ (7801, 7802), Nii River (50m). Toyotama-machi, Shimoagata-gun, Nagasaki Pref., 4. VI, 1984 (M. KOBAYASHI). 10♂♂ (7815), Kaisho River (100m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref. 5. VI. 1984 (M. KOBAYASHI). 8♂♂ 2♀♀ (7777), Funashi River, Yokotori (260m), Kamitsushima-machi Kamiagata-gun, Nagasaki Pref., 6. VI. 1984 (M. KOBAYASHI).

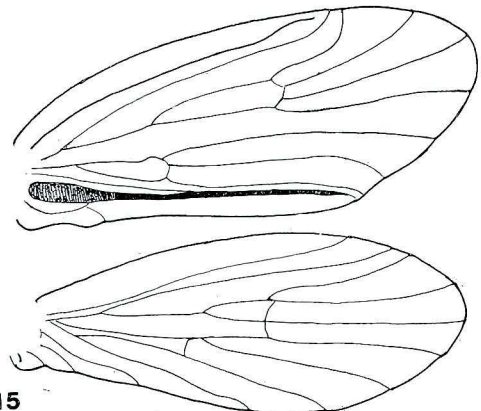
This species is described from Japan. TANI (1978) is first recorded from the Island of Tsushima.

Family **Lepidostomatidae**

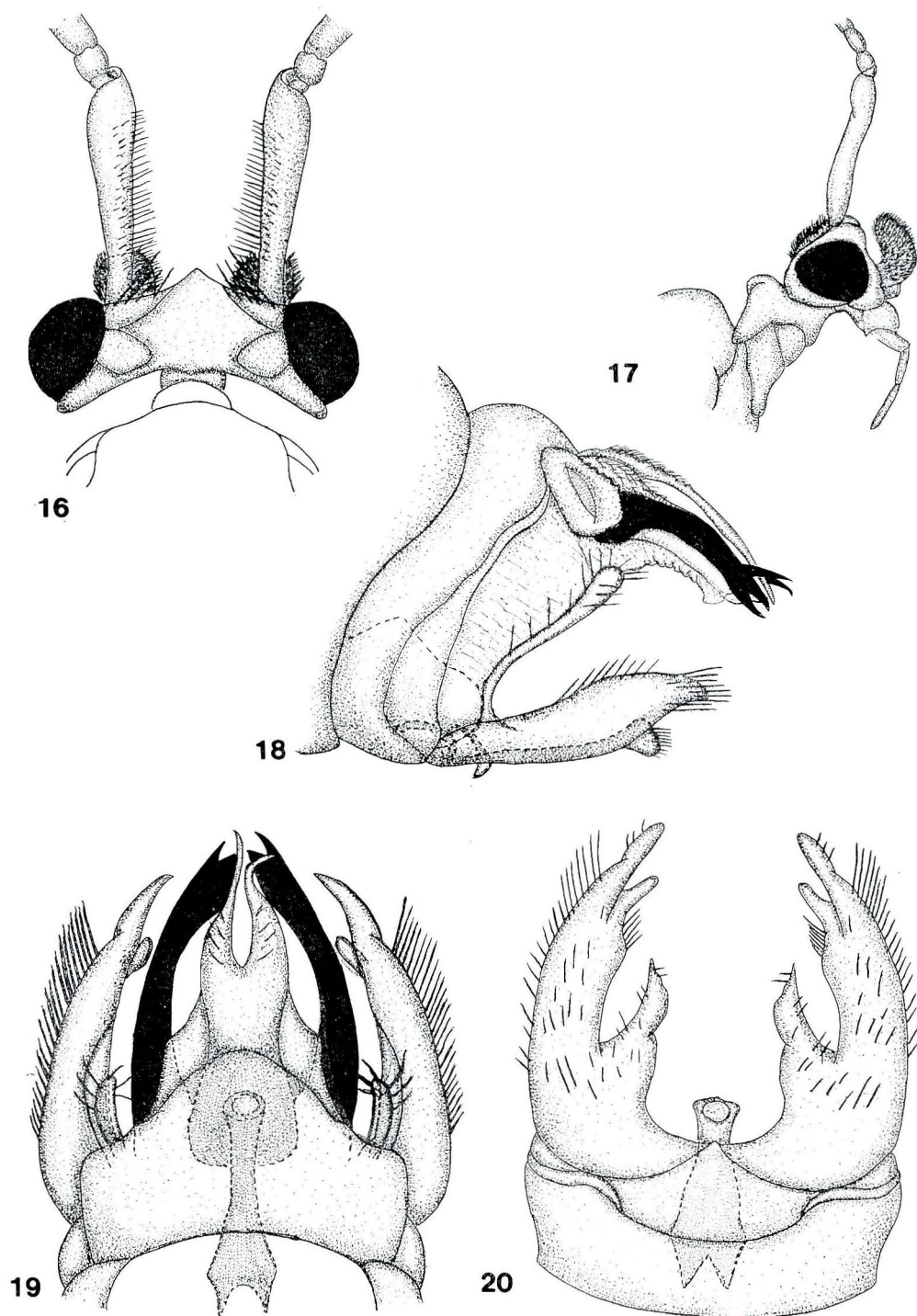
The Lepidostomatidae is represented in all faunal regions except the Neotropical and Australian. They occur in small, cool streams and occasionally along lake shores.

Genus *Crunoceciella* ULMER16) *Crunoceciella toyotamaensis* sp. nov. (Fig. 15-20).

Male: Length 6.3mm. Color gray-brown, the under parts lighter. Wings also uniformly gray-brown. Fore wing densely covered with dark brown scales and hairs, the other structures resembles *C. hiurai*, but R_2 strongly curved to the outside at the apex as in Fig. 15. General structure typical for genus. Genitalia as in Figs. 18, 19, 20. Ninth segment broad and short. Tenth segment elongate, covered with membrane; mesal arm slender, with a spine on the apical surface; lateral arm stout, chitinous, divided into two short lobes; each lobe acute at the apex. Clasper one-segmented, stout, terminal portion rounded, with many long bristles: superior harps stick-shaped, rounded at the terminal margin; inferior harpe slender, swelled at the terminal portion.



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Fig. 15. Wings of *Crunoceciella toyotamaensis* sp. nov.



Figs. 16-20. Male head and genitalia of *Crunoceciella toyotamaensis* sp. nov. 16-17, head; 16, dorsal view; 17, lateral view. 18-20, genitalia; 18, lateral view; 19, dorsal view; 20, ventral view.

Holotype: Male (7807), Nii River, Nii (50m), Toyotama-machi, Shimoagata-gun, Nagasaki Pref., 4. VI. 1984 (M. KOBAYASHI). Paratype: 6♀♀ (7807a), same locality as holotype.

This species closely resembles *C. hiurai*, but differs from that by the venation and the structure of male genitalia.

Genus *Dinarthrodes* ULMER

17) *Dinarthrodes elongata* MARTYNOV

Dinarthrodes elongata MARTYNOV, 1935. Trav. Inst. Zool. Acad. Sci. URSS., 2: 379-384.

Dinarthrodes elongata: TANI, 1978. Natural History of the Island of Iki. Press. Nagasaki Pref.,: 393.

Specimens examined: 1♂ (7799), Asu River, Izuhara (100m), Izuhara-machi, Shimoagata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI). 19♂♂11♀♀ (6806), Nii River, Nii (50m), Toyotama-machi, Shimoagata-gun, Nagasaki Pref., 4. VI. 1984 (M. KOBAYASHI). 6♂♂6♀♀ (7817), Kaisho River (100m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 5. VI. 1984 (M. KOBAYASHI). 2♂♂9♀♀ (7774), Funashi River, Yokotori (260m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 6. VI. 1984 (M. KOBAYASHI).

This species is described from South Usurri. TANI (1978) is first recorded from the Island of Tsushima.

18) *Dinarthrodes kurentzovi* MARTYNOV

Dinarthrodes kurentzovi MARTYNOV, 1935. Trav. Inst. Zool. Acad. Sci. URSS, 2: 392-395.

Dinarthrodes kurentzovi: TANI, 1978. Natural History of the Island of Iki. Press, Nagasaki Pref.: 392.

Specimens examined: 4♂♂ (7798), Asu River, Izuhara (100m), Izuhara-machi, Shimoagata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI). 1♂1♀ (7816), Kaisho River (100m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 5. VI. 1984 (M. KOBAYASHI). 2♂♂1♀ (7773), Funashi River, Yokotori (260m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 6. VI. 1984 (M. KOBAYASHI).

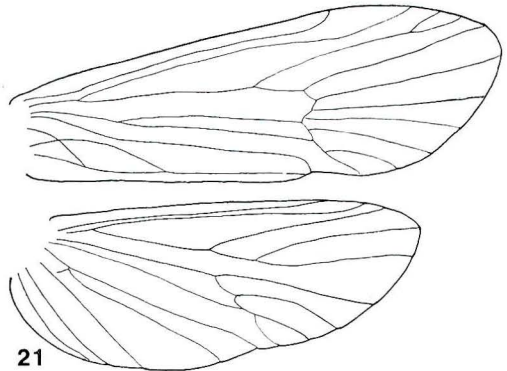
This species is described from South Usurri. TANI (1978) is first recorded from the Island of Tsushima.

Family *Limnephilidae*

The Limnephilidae are the largest family of the Trichoptera in the world. They occupy a wider range of habitats than any other family in Trichoptera. There are genera characteristic of spring streams, river, lakes, and marshes.

Gens *Moropsyche* BANKS18) *Moropsyche apicalis* sp. nov. (Figs. 21-24)

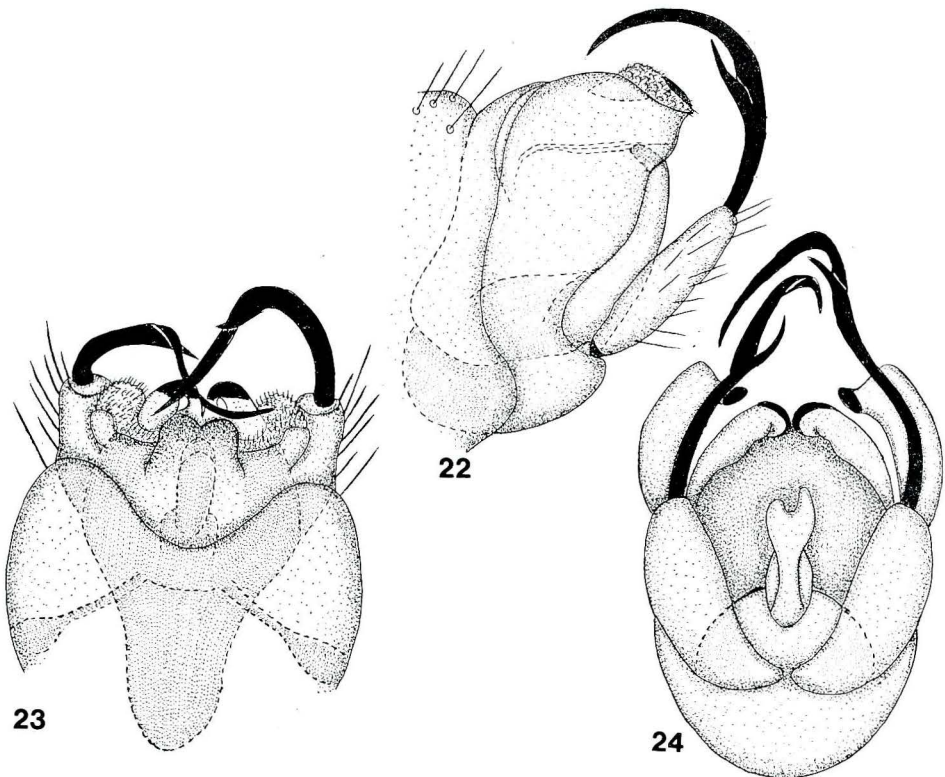
Male: Length 4.4 mm. Color grayish-brown. Wings uniformly gray. General structure typical for genus. Genitalia as in Figs. 22, 23, 24. Ninth tergite broad: upper margin welled at the middle portion, with black lobe. Ninth sternite slender, taper off the end. Tenth segment small; upper surface with many small warts, clothed with short hairs. Clasper two-segmented; basal segment with hairs; terminal segment chitinous, slender, divided into two lobes; outer lobe longer than the inner lobe, strongly curved forwardly.



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Fig. 21, Wings of *Moropsyche apicalis* sp. nov.,

Holotype: Male (7786), Asu River, Izuhara (100m), Izuhara-machi, Shimoagata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI). Paratype: 1 ♂ (7785a), same locality as



Figs. 22-24. Male genitalia of *Moropsyche apicalis* sp. nov. 22, lateral view; 23, dorsal view; 24, caudal view.

holotype.

This species closely resembles of *M. parvula* in the color and the venation, but differs from that by the structure of male genitalia.

Family **Goeridae**

The Goeridae is widely distributed through the Holarctic, Oriental, and Ethiopian faunal regions. Larvae live in running waters, from cold springs to large streams.

Genus *Goera* LEACH

20) *Goera japonica* BANKS

Goera japonica: BANKS, 1906. Proc. Ent. Soc. Washington. 7: 108.

Goera japonica: TSUDA, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B), 17: 235.

Goera japonica: TANI, 1978. Natural History of the Island of Iki. Press, Nagasaki Pref.: 393.

Goera japonica: KOBAYASHI, 1984. Bull. Kanagawa Pref. Mus. (Nat. Hist.). 15: 20.

Specimens examined: 7♂♂2♀♀ (7796), Asu River, Izuhara (100m), Izuhara-machi, Shimoagata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI), 5♂♂14♀♀ (7776), Funashi River, Yokotori (260m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 6. VI. 1984 (M. KOBAYASHI).

Family **Brachycentridae**

The Brachycentridae is widespread over much of the Holarctic region. Larvae live in running water, ranging from cold mountain springs to the slowly flowing channels of marshy rivers.

Genus *Micrasema* McLACHLAN

21) *Micrasema hanasensis* TSUDA

Micrasema hanasensis TSUDA, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B), 17: 328.

Specimens examined: 2♂♂ (7824), Kaisho River (100m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 5. VI. 1984 (M. KOBAYASHI). 2♂♂ (7778). Funashi River, Yokotori (260m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 6. VI. 1984 (M. KOBAYASHI).

This species is described from Kyoto in Japan, and it is here newly recorded from the Island of Tsushima.

Family **Molannidae**

The Molannidae is a small but distinctive family of the Holarctic and Oriental faunal

regions. Most larvae live in lakes, ponds, and areas of slow current in rivers.

Genus *Molanna* CURTIS

22) *Molanna falcata* ULMER

Molanna falcata ULMER, 1908. Deutsche Ent. Zeitschr., 347.

Molanna falcata: TSUDA, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B), 17: 286.

Specimens examined: 1♀ (7783), Asu River, Izuhara (100m), Izuhara-machi, Shimoagata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI). 1♀ (7804), Nii River, Nii (50m), Toyotama-machi, Shimoagata-gun, Nagasaki Pref., 4. VI. 1984 (M. KOBAYASHI).

This species is described from Toshimoto (Honshu) in Japan, and it is here newly recorded from the Island of Tsushima.

Family **Leptoceridae**

The Leptoceridae are a large and flourishing family represented in all of the world's faunal regions. Habitats include ponds, lake shores, and generally slow-flowing areas of streams and rivers.

Genus *Mystacides* LATREILLE

23) *Mystacides azurea* LINNE

Mystacides azurea LINNE, 1761. Fauna Suec., ed. 2: 380.

Mystacides azurea: TSUDA, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B), 17: 294.

Mystacides azurea: TANI, 1978. Natural History of the Island of Iki. Press, Nagasaki Pref., : 394.

Specimens examined: 2♀♀ (7805), Nii River, Nii (50m), Toyotama-machi, Shimoagata-gun, Nagasaki Pref., 4. VI. 1984 (M. KOBAYASHI). 3♀♀ (7819), Kaisho River (100m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 5. VI. 1984 (M. KOBAYASHI).

This species, originally described from Europe, has since been recorded from Siberia, Sagalien and Japan. TANI (1978) is first recorded from the Island of Tsushima.

Genus *Oecetes* McLACHLAN

24) *Oecetes orientalis* TSUDA

Oecetes orientalis TSUDA, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B), 17: 299-300.

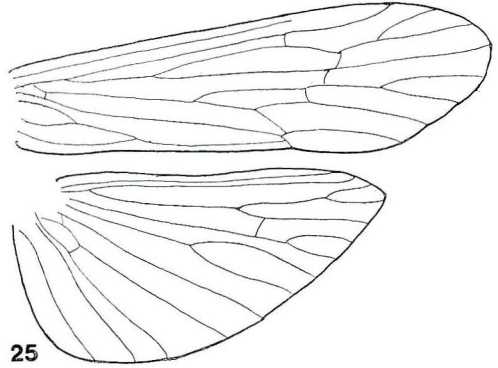
Specimens examined: 1♂ (7787), Asu River, Izuhara (100m), Izuhara-machi, Shimoagata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI). 7♂♂27♀♀ (7813), Kaisho River (100m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 5. VI. 1984 (M. KOBAYASHI).

This species is described from Shiga Prefecture in Japan, and it is here newly recorded from the Island of Tsushima.

Genus *Leptocerus* LEACH

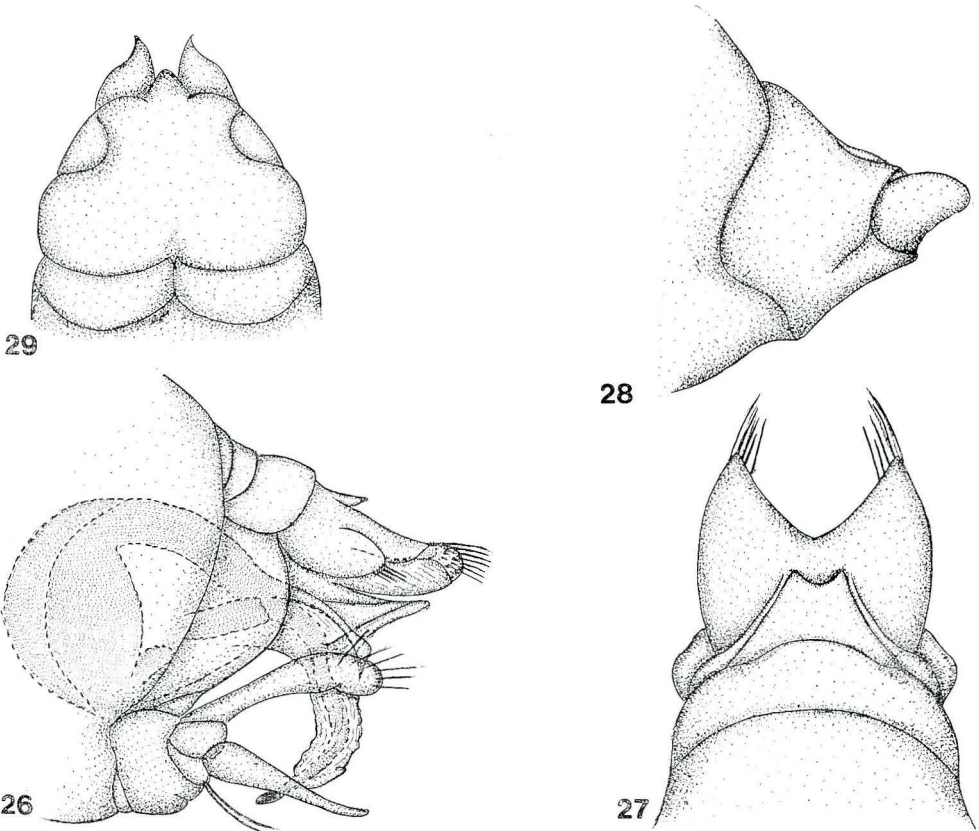
25) *Leptocerus funasiensis* sp. nov. (Figs. 25-29).

Male: Length 7.2mm. Color grayish-brown above, slightly lighter brown below. Wings dark smoky. General structure typical for genus. Genitalia as in Figs. 26, 27. Ninth segment short; tergite small, nearly quadrilateral; margin of sternite slightly processed at the middle portion. Tenth segment long, with terminal portion bearing long hairs; under surface concaved of apical portion; lateral side with cowl-shaped lobe. Clasper divided into two lobes; upper lobes stout, rounded at the apex, with terminal portion bearing a few long bristles; lower lobes slender, taper



25

Fig. 25. Wings of *Leptocerus funasiensis* sp. nov.



Figs. 26-29. Male and female genitalia of *Leptocerus funasiensis* sp. nov. 26-27, male genitalia; 26, lateral view; 27, dorsal view. 28-29, female genitalia; 28, lateral view; 29, dorsal view.

off the end. Aedeagus slender, chitinous, covered with membrane.

Holotype: Male (7770a) Funashi River, Yokotori (260m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 6. VI. 1984 (M. KOBAYASHI). Paratype; 5♂♂5♀♀ (7770b, 7770c), same locality as holotype. 40♂♂80♂♂ (7770), same locality as holotype. 2♂♂2♀♀ (7791), Asu River, Izuhara (100m), Izuhara-machi, Shimoagata-gun, Nagasaki Pref., 3. VI. 1984 (M. KOBAYASHI), 4♂♂8♀♀ (7814), Kaisho River (100m), Kamitsushima-machi, Kamiagata-gun, Nagasaki Pref., 5. VI. 1984 (M. KOBAYASHI).

References

- EMOTO, J. 1979. A Revision of the *retracta*-Group of the Genus *Rhyacophila* PICTET (Trichoptera: Rhyacophilidae). Kontyû 47: 556-569.
- KOBAYASHI, M. 1980. A Revision of the Family Philopotamidae from Japan. Bull. Kanagawa Pref. Mus. (Nat. Hist.) 12: 85-104.
- KOBAYASHI, M. 1985. On the Species of the Subfamilies Apataniinae and Dicosmoecinae from Japan. Bull. Kanagawa Pref. Mus. (Nat. Hist.) 14: 45-78.
- KOBAYASHI, M. 1984. Description of Several Species of Trichoptera from Central Japan (Insecta). Bull. Kanagawa Pref. Mus. (Nat. Hist.) 15: 1-14.
- KOBAYASHI, M. 1984. On the Trichoptera from the Oshima Peninsula, Hokkaido, Japan. Bull. Kanagawa Pref. Mus. (Nat. Hist.) 14: 15-36. (In Japanese)
- MARTYNOV, A. B. 1914. Notes on the Trichoptera Collected by Prof. Sushkin's Expedition of the Alati during 1912. Rev. Russe D'Ent. 14: 72-84.
- MARTYNOV, A. B. 1934. Trichoptera Annulipalpia of the USSR. Leningrad, 345 pp.
- MASTYNOV, A. B. 1935. Trichoptera of the Amur Region Part. I. Trav. Inst. Acad. Sci. URSS. 2-3: 205-395.
- ROSS, H. 1956. Evolution and classification of the mountain caddisflies, 213pp. Univ. Ill. Press Urbana.
- SCHMID, F. Quelques Trichopteres Asiatiques. Candian Ent. 96: 825-840.
- TANI, K. 1971. A Revision of the Family Lepidostomatidae from Japan. Bull. Osaka Mus. Nat. Hist. 24: 45-70.
- TANI, K. 1978. Trichoptera of the Island of Tsushima, Natural History of the Island of Iki. Press Nagasaki Pref., 39-396. (In Japanese)
- TSUDA, M. 1939. Kenntnis der japonischen Philopotamiden (Trichoptera). Annot. Zool. Japon 18: 295-297.
- TSUDA, M. 1940. Zur Kenntnis der japonischen Hydropsychiden (Trichoptera). Annot. Zool. Japon 19: 23-34.
- TSUDA, M. 1940. Zur Kenntnis der japonischen Rhyacophilinen (Rhyacophilidae, Trichoptera). Annot. Zool. Japon 19: 119-135.
- TSUDA, M. 1942. Zur Kenntnis der koreanischen Trichopteren. Mem. Coll. Sci. Kyoto Imp. Univ. (B) 17: 227-237.
- TSUDA, M. 1942. Japanische Trichopteren. I. Systematik. Mem. Coll. Sci. Kyoto Imp. Univ. (B) 17: 239-339.
- ULMER, G. 1908. Japanische Trichopteren. Deutsch. Ent. Zeitschr. 339-355.